

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-4, 7-11, 14-16, 19-23 and 26 are pending in the application, with 1, 8, 15, and 20 being the independent claims. Claims 5-6, 12-13, 17-18 and 24-25 are cancelled by this amendment. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 112

Claim 21 was amended to strike the phrase "the receiving means" to correct the antecedent basis problem noted by the Examiner.

Claim 10 was amended to depend from claim 9 to correct the antecedent basis problem noted by the Examiner.

Rejections under 35 U.S.C. § 102

Claims 1, 8, 20 were rejected under 35 U.S.C. § 102(e) as being anticipated by Duvaut et al. (U.S. Patent No. 7,068,592 B1), hereinafter "Duvaut". This ground of rejection is respectfully traversed.

Duvaut does not teach or suggest all of the features of independent claims 1, 8 and 20, as amended. Independent claims 1, 8, 15 and 20 (including the three independent claims rejected) were amended to require that the carrier groups are of "dynamically variable size."

This feature is not taught by Duvaut. Therefore, Applicants respectfully request that the rejection be withdrawn.

In a communication channel having multiple sub-channels defined by carriers of different frequencies, the claimed modem computes parameters (e.g., signal to noise ratio (SNR) or bit load) describing groups of carriers, and saves and transmit those parameters to other modems in the communication channel. For example, see application FIG. 3 related to determining SNR and FIG. 4 related to determining bit loading. At least one carrier group parameter is used to set up a tone encoder in a far end modem. Modems talking to each other save transmission time and memory by utilizing a few parameters to describe carrier groupings. The grouping of carriers changes dynamically with changing conditions.

Duvaut et al. provides modems that cluster carriers in order to be able to transmit more data on the transmission line, i.e. to increase payload. The reference does not teach or suggest dynamically changing the grouping of carriers and transmitting parameters to other modems describing changed groupings.

Claims 1, 4-6, 8, 11-13, 15, 17-20, and 23-25 were rejected under 35 U.S.C. § 102(b) as being anticipated by Peeters et al. (U.S. Publication No. 2001/0012783 A1), hereinafter "Peeters". This ground of rejection is respectfully traversed.

Peeters does not teach or suggest all of the features of independent claims 1, 8, 15 and 20, as amended. Independent claims 1, 8, 15 and 20 were amended to require that the carrier groups are of "dynamically variable size." This feature is not taught by Peeters. Therefore, Applicants respectfully request that the rejection be withdrawn.

In a communication channel having multiple sub-channels defined by carriers of different frequencies, the claimed modem computes parameters (e.g., signal to noise ratio (SNR) or bit load) describing groups of carriers, and saves and transmit those parameters to

other modems in the communication channel. Modems talking to each other save transmission time and memory by utilizing a few parameters to describe carrier groupings. The grouping of carriers changes dynamically with changing conditions.

Peeters does not teach or suggest dynamically changing the grouping of carriers and transmitting parameters to other modems describing changed groupings. Peeters groups carriers a priori. There are no changes with changing conditions. Although the reference mentions the possibility of grouping through channel analysis, there is no explanation of how this is done. See for example, Peeters paragraph 0021. Peeters describes that transmitting and computing constellation information may be carried out during modem operation (paragraph [0023]) but does not refer to carrier grouping.

Dependent claims 4, 11, 19, and 23 are not anticipated by Peeters for at least the same reasons as the independent claims from which they respectively depend, and further in view of their own respective features.

For at least these reasons, it is respectfully requested that this rejections of claims 1, 4, 8, 11, 15, 19-20, and 23 be withdrawn.

Rejections under 35 U.S.C. § 103

Claims 2-3, 9-10, 16, and 21-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Peeters et al. (U.S. Publication No. 2001/0012783 A1). This ground of rejection is respectfully traversed.

Peeters does not teach or suggest all of the features of independent claims 1, 8, 15 and 20, as amended, from which the rejected claims respectively depend. Independent claims 1, 8, 15 and 20 were amended to require that the carrier groups are of "dynamically variable

size." This feature is not taught by Peeters. Therefore, Applicants respectfully request that the rejection be withdrawn.

In a communication channel having multiple sub-channels defined by carriers of different frequencies, the claimed modem computes parameters (e.g., signal to noise ratio (SNR) or bit load) describing groups of carriers, and saves and transmit those parameters to other modems in the communication channel. At least one carrier group parameter is used to set up a tone encoder in a far end modem. Modems talking to each other save transmission time and memory by utilizing a few parameters to describe carrier groupings. The grouping of carriers changes dynamically with changing conditions.

Peeters does not teach or even suggest dynamically changing the grouping of carriers and transmitting parameters to other modems describing changed groupings. Peeters groups carriers a priori. There are no changes of carrier groups with changing conditions. Peeters does teach computing and transmitting *constellation information* (not carrier grouping) carried out during modem operation (see Peeters paragraph [0023]).

For at least these reasons, it is respectfully requested that this rejections of claims 2-3, 9-10, 16, and 21-22 be withdrawn.

Claims 7, 14 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Peeters et al. (U.S. Publication No. 2001/0012783 A1) in view of Gardner et al. (U.S. Patent No. 7,042,367 B2), hereinafter "Gardner". This ground of rejection is respectfully traversed

The combined teachings of Peeters and Gardner do not teach or suggest all of the features of independent claims 1, 8, and 20, from which the rejected claims respectively depend. Independent claims 1, 8, and 20 were amended to require that the carrier groups are

of "dynamically variable size." This feature is neither taught by Peeters nor Gardner.

Therefore, Applicants respectfully request that the rejection be withdrawn.

In a communication channel having multiple sub-channels defined by carriers of different frequencies, the claimed modem and method of grouping compute parameters (e.g., SNR or bit load) describing groups of carriers. The parameters are saved and transmitted to other modems via the communication channel. At least one carrier group parameter is used to set up a tone encoder in a far end modem. Modems talking to each other save transmission time and memory by utilizing a few parameters to describe carrier groupings. The grouping of carriers changes dynamically with changing conditions.

Peeters does not teach or even suggest dynamically changing the grouping of carriers and transmitting parameters to other modems describing changed groupings. Peeters groups carriers a priori. There are no changes of carrier groups with changing conditions. Peeters does teach computing and transmitting ***constellation information*** (not carrier grouping) carried out during modem operation (see Peeters paragraph [0023]).

Gardner does not fill in the teachings missing from Peeters. Gardner teaches the use of tone order and a constellation encoder (see Gardner FIG. 5). There is no mention of an encoder being set by another modem using carrier group parameters.

For at least these reasons, it is respectfully requested that this rejections of claims 7, 14 and 26 be withdrawn.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicant believes that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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